

CLAIMS

1. A connector assembly for detachably coupling a proximal end of a lead and an implantable medical device, comprising:

a deflectable connector clip including a first arm, a second arm and a top portion extending between the first arm and the second arm, the first arm and the second arm detachably positioning the proximal end of the lead within the implantable medical device; and

a housing portion having a first deflection portion deflecting the connector clip from a first position corresponding to a first distance between the first arm and the second arm, to a second position corresponding to a second distance between the first arm and the second arm.

2. The connector assembly of claim 1, wherein the housing portion further comprises a front end, the front end forming a connector port and the housing portion forming a channel and a first aperture to receive the connector clip, the channel extending along a central axis within the housing portion and in fluid communication with the connector port, and the first aperture in fluid communication with the channel, wherein the first deflection portion is positioned within the first aperture and the first arm and the second arm extend perpendicular to the central axis as the connector clip is positioned within the channel via the first aperture and deflected from the first position to the second position by the first deflection portion.

3. The connector assembly of claim 2, wherein the second distance is greater than the first distance and the proximal end of the lead further deflects the connector clip from the second position to a third position, corresponding to a third distance between the first arm and the second arm greater than the second distance, the connector clip detachably engaging and electrically coupling the proximal end of the lead to the implantable medical device as the proximal end of the lead is inserted within the channel via the connector port.

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4. The connector assembly of claim 2, wherein the first arm and the second arm extend within the channel and are engaged against and electrically couple the proximal end of the lead as the proximal end of the lead is inserted within the channel via the connector port.
5. The connector assembly of claim 2, further comprising a second deflection portion engaging the top portion of the connector clip when the connector clip is in the second position.
6. The connector assembly of claim 2, further comprising a seal member, wherein the housing portion forms a second aperture in fluid communication with the channel, the seal member being insertable within the channel via the second aperture and sealably engaging about the proximal end of the lead as the proximal end of the lead is inserted within the channel via the connector port.
7. The connector assembly of claim 1, wherein the first deflection portion includes a tapered portion engaging the connector clip as the connector clip is deflected from the first position to the second position.
8. The connector assembly of claim 5, wherein at least one of the first deflection portion and the second deflection portion includes a tapered portion engaging the connector clip as the connector clip is deflected from the first position to the second position.
9. The connector assembly of claim 3, further comprising:
 - a first flange positioned along the first arm and extending outward toward the second arm; and
 - a second flange positioned along the second arm and extending outward toward the first arm, wherein the first flange and the second flange extend within the channel when the connector pin is in the second position.

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10. The connector assembly of claim 9, wherein one or both of the first flange and the second flange include a tapered portion to facilitate deflection of the connector clip from the second position to the third position as the proximal end of the lead is inserted within the channel via the connector port.

11. The connector assembly of claim 3, wherein the first deflection portion includes a first side wall and a second side wall, the first arm engaged against the first side wall and the second arm engaged against the second side wall in response to the connector clip being in the second position, and wherein the first arm is spaced from the first side wall and the second arm is spaced from the second side wall in response to the connector clip being in the third position.

12. The connector assembly of claim 9, wherein the first deflection portion includes a first side wall and a second side wall, the first arm engaged against the first side wall and the second arm engaged against the second side wall in response to the connector clip being in the second position, and wherein the first arm is spaced from the first side wall, the second arm is spaced from the second side wall, and the first flange and the second flange are engaged against the proximal end of the lead in response to the connector clip being in the third position.

13. The connector assembly of claim 5, wherein, prior to being deflected by the first deflection portion, the connector clip is deflected from the first position by the second deflection portion.

14. The connector assembly of claim 1, further comprising a protrusion formed along an inner portion of the first arm and the second arm, the protrusion including a tapered portion engaging against the proximal end of the lead as the lead is advanced through the connector clip.

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15. The connector assembly of claim 3, wherein the first arm and the second arm are engaged against the first engagement portion when the connector clip is in the second position, and extend outward from the first engagement portion when the connector clip is in the third position.
16. An implantable medical device capable of being detachably coupled to a proximal end of a lead, comprising:
 - a deflectable connector clip including a first arm, a second arm and a top portion extending between the first arm and the second arm, the first arm and the second arm detachably positioning the proximal end of the lead within the implantable medical device; and
 - a housing portion having a first deflection portion deflecting the connector clip from a first position corresponding to a first distance between the first arm and the second arm, to a second position corresponding to a second distance between the first arm and the second arm.
17. The device of claim 16, wherein the housing portion further comprises a front end, the front end forming a connector port and the housing portion forming a channel and a first aperture to receive the connector clip, the channel extending along a central axis within the housing portion and in fluid communication with the connector port, and the first aperture in fluid communication with the channel, wherein the first deflection portion is positioned within the first aperture and the first arm and the second arm extend perpendicular to the central axis as the connector clip is positioned within the channel via the first aperture and deflected from the first position to the second position by the first deflection portion.
18. The device of claim 17, wherein the second distance is greater than the first distance and the proximal end of the lead further deflects the connector clip from the second position to a third position, corresponding to a third distance between the first arm and the second arm greater than the second distance, the connector clip detachably engaging and electrically coupling the

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proximal end of the lead to the implantable medical device as the proximal end of the lead is inserted within the channel via the connector port.

19. The device of claim 17, wherein the first arm and the second arm extend within the channel and are engaged against and electrically couple the proximal end of the lead as the proximal end of the lead is inserted within the channel via the connector port.

20. The device of claim 17, further comprising a second deflection portion engaging the top portion of the connector clip when the connector clip is in the second position.

21. The device of claim 17, further comprising a seal member, wherein the housing portion forms a second aperture in fluid communication with the channel, the seal member being insertable within the channel via the second aperture and sealably engaging about the proximal end of the lead as the proximal end of the lead is inserted within the channel via the connector port.

22. The device of claim 16, wherein the first deflection portion includes a tapered portion engaging the connector clip as the connector clip is deflected from the first position to the second position.

23. The device of claim 20, wherein at least one of the first deflection portion and the second deflection portion includes a tapered portion engaging the connector clip as the connector clip is deflected from the first position to the second position.

24. The device of claim 18, further comprising:
a first flange positioned along the first arm and extending outward toward the second arm; and

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a second flange positioned along the second arm and extending outward toward the first arm, wherein the first flange and the second flange extend within the channel when the connector pin is in the second position.

25. The device of claim 24, wherein one or both of the first flange and the second flange include a tapered portion to facilitate deflection of the connector clip from the second position to the third position as the proximal end of the lead is inserted within the channel via the connector port.

26. The device of claim 18, wherein the first deflection portion includes a first side wall and a second side wall, the first arm engaged against the first side wall and the second arm engaged against the second side wall in response to the connector clip being in the second position, and wherein the first arm is spaced from the first side wall and the second arm is spaced from the second side wall in response to the connector clip being in the third position.

27. The device of claim 24, wherein the first deflection portion includes a first side wall and a second side wall, the first arm engaged against the first side wall and the second arm engaged against the second side wall in response to the connector clip being in the second position, and wherein the first arm is spaced from the first side wall, the second arm is spaced from the second side wall, and the first flange and the second flange are engaged against the proximal end of the lead in response to the connector clip being in the third position.

28. The device of claim 20, wherein, prior to being deflected by the first deflection portion, the connector clip is deflected from the first position by the second deflection portion.

29. The device of claim 16, further comprising a protrusion formed along an inner portion of the first arm and the second arm, the protrusion including a

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tapered portion engaging against the proximal end of the lead as the lead is advanced through the connector clip.

30. The device of claim 18, wherein the first arm and the second arm are engaged against the first engagement portion when the connector clip is in the second position, and extend outward from the first engagement portion when the connector clip is in the third position.